

Claims

1. An assembly of a pneumatic tire and a rim, said pneumatic tire comprising;

at least one carcass ply composed of a plurality of ply cords and comprising two end portions, and

a belt layer composed of belt cords, said belt layer being provided outside of said carcass ply, each belt cord extending in a direction intersecting said ply cord,

wherein each of said end portions is held in said rim and wherein the width of said pneumatic tire is maximum in a circumferential cross section with a cylindrical shape with respect to the center axis of said pneumatic tire, said cross section extending through said rim.

2. The assembly of claim 1, wherein said rim comprises rim flanges and each of said end portions of said carcass ply is fixed on each of said rim flanges.

3. The assembly of claim 1, wherein said rim comprises a main body and at least one separate body, and wherein at least one of said end portions is held between said main body and said separate body.

4. The assembly of claim 2, wherein said rim comprises a main body and at least one separate body, and wherein at least one of said end portions is held between said main body and said separate body.

5. The assembly of claim 4, wherein said main body is provided inside of said carcass ply with respect to said center axis of said tire, and wherein at least a part of said separate body is provided outside of said end portion with respect to said center axis.

6. The assembly of claim 5, wherein said main body is constructed

based on an industrial standard of a rim.

7. The assembly of claim 5, wherein said main body comprises said rim flanges and wherein said separate body surrounds at least a part of said rim flange.

8. The assembly of claim 7, wherein at least a part of said rim flange is inserted into an aperture formed in said separate body.

9. The assembly of claim 3, wherein said separate body comprises bead portions.

10. The assembly of claim 5, wherein said separate body comprises bead portions.

11. The assembly of claim 8, wherein said separate body comprises bead portions.

12. The assembly of claim 1, wherein said carcass ply comprises a main portion, bead portions provided in said end portions and bead cores inserted within said bead portions, respectively.

13. The assembly of claim 12, wherein said bead portion comprises a protruding portion protruding inside of said carcass ply toward said center axis of said tire, said bead portion being inserted within said protruding portion.

14. The assembly of claim 13, wherein said ply cord is wound around said bead core within said protruding portion.

15. The assembly of claim 12, wherein said carcass ply comprises a connecting portion extending in a direction substantially parallel with the center axis of said tire from said bead portion and wherein at least a part of said connecting portion is held in and fixed with said rim.

16. The assembly of claim 13, wherein said carcass ply comprises a connecting portion extending in a direction substantially parallel with the center axis of said tire from said bead portion and wherein at least a part of said

connecting portion is held in and fixed with said rim.

17. The assembly of claim 12, wherein said rim comprises a main body and at least one separate body, and wherein at least one of said end portions is held between said main body and said separate body.

18. The assembly of claim 17, wherein said main body is provided inside of said carcass ply with respect to said center axis and wherein at least a part of said separate body is provided outside of said end portion with respect to said center axis.

19. The assembly of claim 18, wherein said end portion comprises a protrusion engaged with the inner wall of said main body.

20. The assembly of claim 18, wherein said end portion comprises a protrusion engaged with the inner wall of said separate body.

21. The assembly of claim 12, wherein said bead core has a spring constant in the circumference of said tire and a spring constant in the direction of tire width, said spring constant in the circumference being smaller than said spring constant in the direction of tire width.

22. The assembly of claim 12, wherein said bead core is a metal spring.

23. The assembly of claim 21, wherein said bead core is a metal spring.

24. The assembly of claim 21, wherein said bead core is made of a thermoplastic resin.

25. The assembly of claim 18, wherein said carcass ply is contacted with said separate body and said main body, and wherein a length of the contacted region of said carcass ply and said separate body in the direction of tire width is larger than a length of the contacted region of said carcass ply and said main body in the direction of tire width.

26. The assembly of claim 1, wherein said carcass ply comprises a neighboring portion which is adjacent to said end portion of said carcass ply and is not held in said rim, and wherein said neighboring portion has an outer surface whose center of curvature, viewed in a cross section including said center axis of said tire, is located outside of said carcass ply with respect to the center axis of said tire.

27. A pneumatic tire to be fixed on a rim, said pneumatic tire comprising;

at least one carcass ply composed of a plurality of ply cords and comprising two end portions, and

a belt layer composed of belt cords, said belt layer being provided outside of said carcass ply, each belt cord extending in a direction intersecting said ply cord,

wherein the width of said pneumatic tire is maximum in a circumferential cross section with a cylindrical shape with respect to the center axis of said pneumatic tire, said tire being to be fixed on said rim so that said cross section extends through said rim.

28. The tire of claim 27, comprising a reinforcing layer provided within said end portion of said carcass ply.

29. The tire of claim 28, wherein said reinforcing layer extends in a direction intersecting said ply cord.

30. The tire of claim 29, wherein said reinforcing layer is made of steel cords.

31. The tire of claim 27, wherein said carcass ply comprises a main portion, bead portions provided in said end portions and bead cores inserted within said bead portions.

32. The tire of claim 31, wherein said carcass ply comprises a

connecting portion extending in a direction substantially parallel with the center axis of said tire from said bead portion and wherein at least a part of said connecting portion is to be held in and fixed with said rim.

33. The tire of claim 31, wherein said bead core has a spring constant in the circumference of said tire and a spring constant in the direction of thickness of said tire, said spring constant in said circumference being smaller than said spring constant in said direction of thickness.

34. The tire of claim 31, wherein said bead core is a metal spring.

35. The tire of claim 33, wherein said bead core is a metal spring.

36. The tire of claim 33, wherein said bead core is made of a thermoplastic resin.

37. A rim for fixing a pneumatic tire, said pneumatic tire comprising:

at least one carcass ply composed of a plurality of ply cords and comprising two end portions; and

a belt layer composed of belt cords, said belt layer being provided outside of said carcass ply, each belt cord extending in a direction intersecting said ply cord,

wherein said rim comprises a main body and at least one separate body for holding at least one of said end portions between said main body and said separate body.

38. The rim of claim 37, wherein said main body is provided inside of said carcass ply with respect to the center axis of said tire, and wherein at least a part of said separate body is provided outside of said end portion with respect to said center axis.

39. The rim of claim 37, wherein said main body is constructed based on an industrial standard of a rim.

40. The rim of claim 37, wherein said main body comprises rim flanges and wherein said separate body surrounds said rim flange.

41. The rim of claim 40, wherein said rim flange is inserted into an aperture formed in said separate body.

42. The rim of claim 37, wherein said main body comprises bead portions.